THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte MOTOMI ITIHASI

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Appeal No. 95-3348
Application 07/944,967[1]

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ON BRIEF

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Before HAIRSTON, KRASS and LEE, Administrative Patent Judges.

LEE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1 and 4. No claim has been allowed.[2] Claim 1 is the only independent claim.

References Relied on by the Examiner

Japanese Laid-Open Application	63-40352 (Shiga)	Feb. 20, 1988

[1] Application for patent filed September 15, 1992.

[2] The amendment filed after the final rejection, on November 2, 1994 (Paper No. 16), has been entered.

Prior art acknowledged in the appellant's own specification.

The Rejection on Appeal

Claims 1 and 4 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shiga and the prior art acknowledged in the appellant's specification..

The Invention

The invention is directed to a combination lead frame and pressure sensor assembly. A die pad exists for the mounting of a load member thereon, comprising one main die pad and two auxiliary die pads. The auxiliary die pads are separate from and disposed on opposite sides of the main die pad. There is an outer frame having four sides. The supporting leads for the main die pad are connected to a first side of the frame and the supporting leads for the auxiliary die pads are connected to a second side of the frame opposite the first side. Also, the supporting leads for the main die pad and for the two auxiliary die pads extend inwardly from the frame in opposite directions.

According to the appellant, a structure according to the present invention provides more vertical stability in the mounting of a load element on the die pad.

Independent claim 1 is reproduced below:

1. A lead frame and pressure sensor assembly comprising:

a unitary lead frame including:

> an annular outer frame having four sides and lying in a first plane;
>
> a die pad disposed within said frame comprising one main die pad and two auxiliary die pads separate from and disposed on opposite sides of said main die pad, said main and auxiliary die pads being commonly disposed in a second plane spaced from the first plane;
>
> a main die pad supporting lead connected to a first side of said frame and to said main die pad and two auxiliary die pad supporting leads connected to a second side of said frame opposite the first side of said frame and to said two auxiliary die pads, respectively, each supporting lead having a predetermined length so that said main die pad and said two auxiliary die pads lie in the second plane, said main die pad supporting lead and said auxiliary die pad supporting leads respectively extending inwardly from said frame in opposite directions;
>
> at least one connecting lead extending inwardly from said frame for establishing an electrical connection to an element mounted on said main die pad and said two auxiliary die pads; and
>
> a semiconductor pressure detecting element mounted on said main die pad and said two auxiliary die pads.

Opinion

The rejection of claims 1 and 4 cannot be sustained.

The examiner notes that the prior art discussed in the appellant's specification does not include auxiliary pads (answer at 3). With respect to Shiga, the examiner stated (answer at 3-4):

> In figures 1B and 1E, Shiga et al. teach a lead frame including an annular outer frame having at least

> one main die pad (15) with a supporting lead (3); and two or three auxiliary die pads (13, 14 or 16) with supporting leads (3', 3'', or 3'''), separate from and disposed on opposite sides of the main die pad (15), each extending inwardly from an opposite direction from the frame.

We find several errors and deficiencies in the examiner's analysis. In Shiga's Figure 1(E), all of the four die pads in the middle of the lead frame are connected. It cannot be reasonably said that there are two auxiliary die pads separate from a main die pad. Even if we consider the die pads of Shiga's Figure 1(E) as separate, the Figure discloses nothing more than Shiga's Figure 1(B) which has other deficiencies. The die pads shown in Shiga's Figure 1(B) have supporting leads which are evidently connected to the four corners of a lead frame. Thus, it cannot be said that the supporting leads for the main die pad, whichever one pad is denominated as the main die pad, are connected to a first side, and that the supporting leads for two auxiliary die pads, whichever two pads are denominated as auxiliary die pads, are connected to a second side opposite the first side.

In any event, not all pads in Shiga's Figure 1(B) may constitute auxiliary die pads disposed on opposite sides of the main die pad. In our view, an adjacent die pad and a diagonally opposed die pad are not on opposite sides of the main die pad.

The examiner erroneously concluded (answer at 5) that any two auxiliary pads that are adjacent to one another are separated from and disposed on opposite sides of a corresponding main die.

Furthermore, independent claim 1 requires that the supporting leads for the main die pad and the supporting leads for the two auxiliary die pads extend in "opposite directions." Looking at Shiga's Figures 1(B) and 1(E), we do not see the supporting leads for one main die pad going one way and the supporting leads for two auxiliary die pads going in an "opposite" direction. The examiner's conclusion that leads 3', 3'', and 3''' extend inwardly in opposite directions is without basis. The most that can be said is that supporting leads 3' and 3''' extend in opposite directions and that supporting leads 3 and 3'' extend in opposite directions. But that is not enough to meet the claim. The term "opposite" is not met by the more generic characteristic of simply being "different." The examiner has not adequately explained how two of the leads 3, 3', 3'', and 3''', extend in "opposite" direction with respect to another one of 3, 3', 3'', and 3'''.

According to the appellant's specification, the various "opposite side" and "opposite direction" features of the claim are what allegedly give the appellant's invention the added

stability in the mounting of a load element on the die pads. These claim features cannot be ignored or made irrelevant by talking about generalities.

Claim 4 depends from claim 1 and thus includes all the limitations of claim 1.

For the foregoing reasons, the rejection of claims 1 and 4 under 35 U.S.C. § 103 as being unpatentable over Shiga and the appellant's own admitted prior art cannot be sustained.

Conclusion

The rejection of claims 1 and 4 under 35 U.S.C. § 103 as being unpatentable over Shiga and the appellant's own admitted prior art is reversed.

REVERSED

KENNETH W. HAIRSTON Administrative Patent Judge	)	
ERROL A. KRASS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JAMESON LEE Administrative Patent Judge	)	

Leydig, Voit & Mayer
700 Thirteenth Street, NW Suite 300
Washington, DC 20005